

## Monitoring pollinators in meadows – key questions

- Before creating meadows, how important are existing grasslands for pollinators?
- How do we monitor pollinators in newly created meadows?
- Can volunteers from Friends groups do this, what skills and training do they feel they would need?
- Any examples of surveys done elsewhere that we could use in Tees Valley?

### Background: Why Monitor Pollinators?

There is currently no systematic or standardised monitoring programme for pollinators in the UK. Scientists estimating trends in pollinator populations currently have to rely on haphazardly collected records.

Defra have tasked the Centre for Ecology and Hydrology (CEH) and the University of Leeds to develop and test options for a **National Pollinator Monitoring Scheme** to track the status of pollinator and pollination services in the UK. It will design and test robust sampling and survey procedures that can be implemented by a partnership of Government agency and volunteer societies.

NPMS will collect data on:

1. Pollinator diversity and species composition (at coarse or fine taxonomic resolution)
2. Pollinator population dynamics/trends
3. Pollinator abundance
4. Pollination service/provision

### How monitor pollinators?

There are different ways to monitor pollinators, but to collect data on a large scale will require **public participation/citizen science** (lots of low quality data on abundance at coarse-scale resolution, important role of technology). This is also an ideal starting point for monitoring urban meadows.

- With some level of training, general public can gather data on pollinator *abundance* by identifying pollinators to broad groups (coarse-scale taxonomic resolution), e.g. red-tailed Bumblebees, White-tailed Bumblebees, honeybee, solitary bee, hoverfly etc
  - o See ID guides from Buglife and BBCT
- Also great opportunity for **school groups** – can link to national curriculum and collect useful data at the same time.
  - o See Bumblebee Conservation Trust and Buglife educational resources
- Surveys generally involve either:
  - (i) A walk ('transect') around the perimeter of the meadow, counting all pollinators seen and identifying them to broad groups (could catch pollinators and release them or take photos to help with ID)
  - (ii) A timed observation of a small part of the meadow (e.g. 1m<sup>2</sup>), counting all pollinators visiting within a short period of time (e.g. 15 mins). The Big Butterfly Count (<http://www.bigbutterflycount.org/>) uses a similar methodology. See also the

#### Big Bumblebee Discovery logbook

(<http://journals.plos.org/plosone/article/asset?unique&id=info:doi/10.1371/journal.pone.0150794.s001>) – note that this project has now finished but it is a nice example of a 'citizen science' survey designed for school children

- University student projects – could use lethal survey methods to enable species-level identification (e.g. pan traps)
- In the future, species identification will become easier through novel technologies, such as DNA barcoding and wing venation recognition

#### BBCT BeeWatch

- Volunteers take digital photographs of unusual species and upload them
- The BeeWatch tool is administered for BBCT by the University of Aberdeen.
- The BeeWatch tool will guide you through some easy questions to help identify the bumblebee in your photo. Once your photo has been verified by one of our experts we will email you back to let you know just how good your bumblebee ID skills are!
- BeeWatch also gives you the opportunity to help identify other peoples' photos, which is a great way to improve your own ID skills.
- If your photo is clear enough for a definite identification it will become a record on the [National Biodiversity Network](#) website where it will help scientists and politicians to track bumblebee distributions.

#### Resources

- The Big Bumblebee Discovery logbook  
<http://journals.plos.org/plosone/article/asset?unique&id=info:doi/10.1371/journal.pone.0150794.s001>
- Bumblebee Conservation Trust (BBCT) identification webpages  
(<https://bumblebeeconservation.org/about-bees/identification/>)
- BBCT Bumblebee ID chart  
([http://bumblebeeconservation.org/images/uploads/Resources/BBCT\\_Bumblebee\\_ID\\_sheet\\_\(big\\_8\).pdf](http://bumblebeeconservation.org/images/uploads/Resources/BBCT_Bumblebee_ID_sheet_(big_8).pdf))
- BBCT BeeWatch <http://homepages.abdn.ac.uk/wpn003/beewatch/index.php?r=user/auth>
- Bumblebees iPhone App (<http://www.birdguides.com/webzine/article.asp?a=3814>)
- Buglife Pollinator ID chart  
(<https://www.buglife.org.uk/sites/default/files/Pollinator%20identification%20chart.pdf>)
- Buglife Bumblebees (<https://www.buglife.org.uk/sites/default/files/Bumblebees.pdf>)
- Buglife Garden flowers for bumblebees  
(<https://www.buglife.org.uk/sites/default/files/Plants%20for%20bees.pdf>)
- Butterfly Conservation Big Butterfly Count <http://www.bigbutterflycount.org/>
- FSC fold-out guide (<http://www.field-studies-council.org/publications/pubs/guide-to-bees-of-britain.aspx>)
- Field Guide to Bees of GB and Ireland: Steven Falk, Richard Lewington  
(<http://www.britishwildlife.com/viewbook.asp?bookid=34>)

- Bees, Wasps and Ants Recording Society (BWARS) <http://www.bwars.com/>
- RHS Perfect for Pollinators <https://www.rhs.org.uk/science/conservation-biodiversity/wildlife/encourage-wildlife-to-your-garden/plants-for-pollinators>

*For Schools*

- Buglife teaching resources, including pollinators spotting sheet (<https://www.buglife.org.uk/activities-for-you/children-and-schools/bug-resources-schools>)
- Plantlife Bee Scene (<http://www.wildaboutplants.org.uk/beescene/>)
- BBCT Bumble Kids activity sheets (<http://bumblebeeconservation.org/get-involved/bumble-kids/activities/>)
- Friends of the Earth bees education pack ([https://www.foe.co.uk/sites/default/files/downloads/bees\\_education\\_booklet.pdf](https://www.foe.co.uk/sites/default/files/downloads/bees_education_booklet.pdf))